Risk Action Levels

June 20, 2017

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Topics Covered in this Presentation

- New name “Risk Action Level”
- “Director Consultation” Risk Action Level
- Upper risk limit for new facilities
- Detailed evaluation of non-cancer risk
- Removal of risk action levels for individual emissions units
- Increase to risk action levels for existing facilities
- Increase to range of risk action levels for area

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Risk Action Level Handout

Summary of Proposed Changes to Risk Action Levels
June 20th, 2017 Rules Advisory Committee Meeting

		Risk Action Levels			
		3/21 Framework Proposal		6/13 Draft Proposal	
		cancer	HI	cancer	HI
Facility	De minimis	0.5	0.5	0.5	0.5
New Emissions Unit	Emissions Unit	1	1	none	none
	Emissions Unit with TBACT	5	1	none	none
New Facility	Facility	10	1	10	1
	Accelerated Schedule	25	1	none	none
	Can only exceed with approval from DEQ Director after consultation with OHA and local/elected officials	none	none	10	1
	No permit issued	none	none	100	3
Existing Facility	Facility	10	1	25	1
	Accelerated Schedule	25	3	50	3*
	Can only exceed with approval from DEQ Director after consultation with OHA and local/elected officials	none	none	100	3
Area Cap	If emissions from one or more facilities impact the same receptor at or above this value, then no new facilities or modifications are allowed that would increase impact at that receptor	considering a value between 20 and 80	2-4	considering a value between 50 and 100	3*

*Hazard Index of 3 or HI approved by DEQ/OHA by target organ (matrix that depends on uncertainty factor and severity of health effect)

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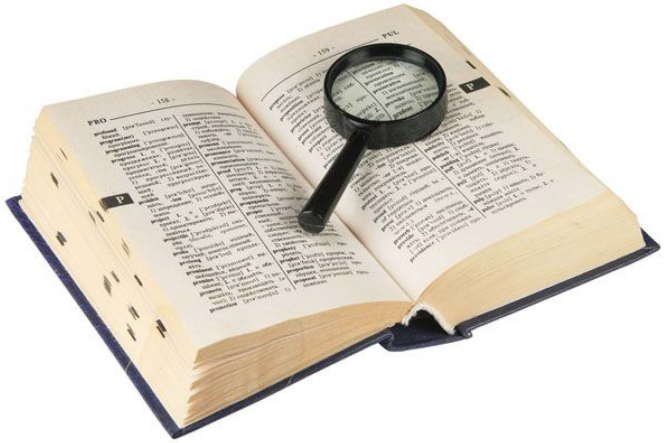
Proposed Revision: Risk Action Levels

Proposed terminology change from "allowable risk" to "risk action levels"

- More descriptive, closer to original intent – level at which different actions happen
  - Better aligned with similar concepts in other state programs



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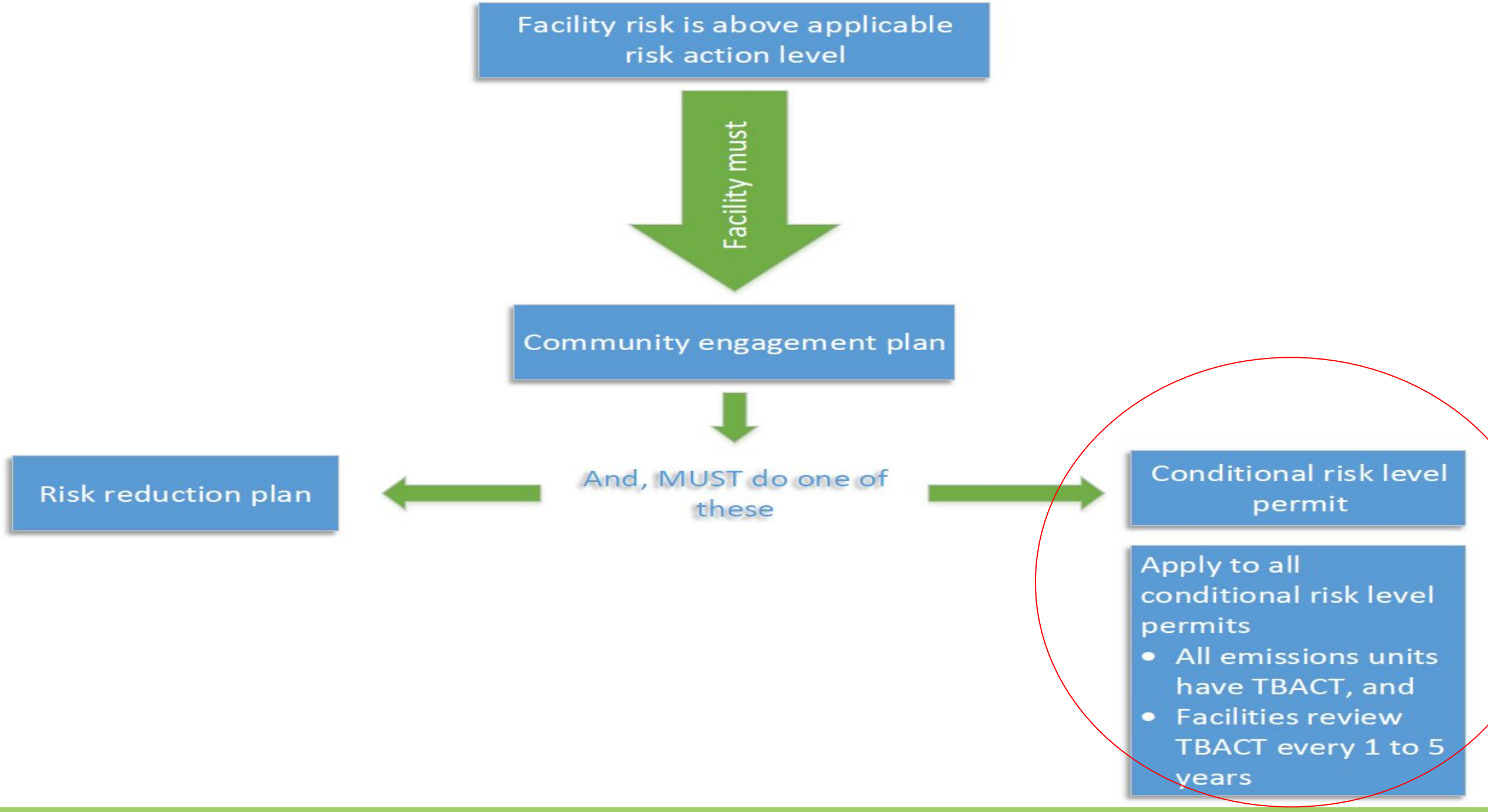
Facility risk is above applicable risk action level
Facility must
Community engagement plan
And, MUST do one of these
Risk reduction plan
Conditional risk level permit
Apply to all conditional risk level permits
• All emissions units have TBACT, and
• Facilities review TBACT every 1 to 5 years

New Element: Director Consultation

- Director approval would be required for facilities above designated risk action levels to get permits
  - New facilities above risk action levels of 10/million and HI 1
  - Existing facilities above risk action levels of 100/million or HI 3
- Opportunity to balance community factors and encourage broader engagement

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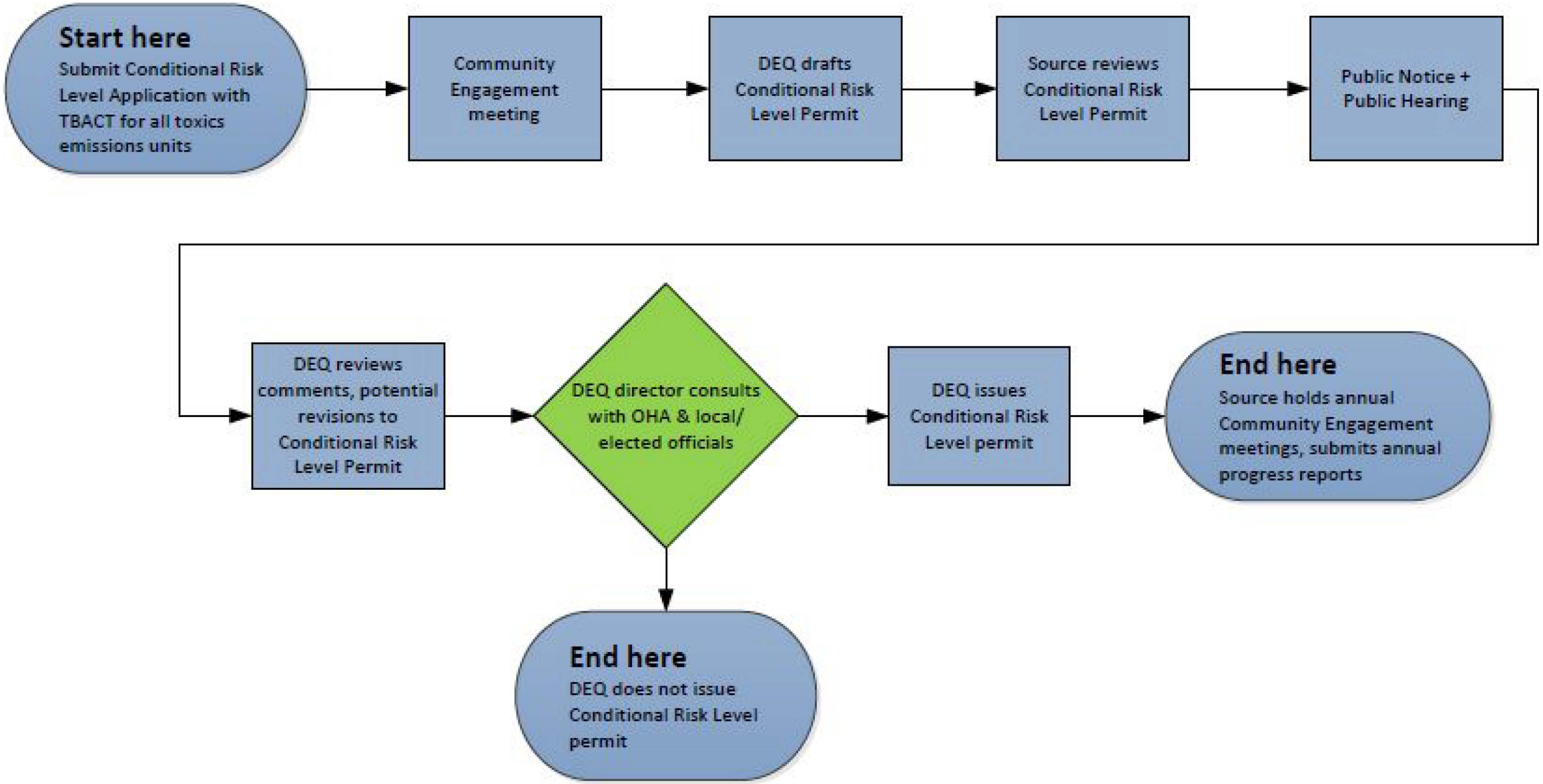

Flow Diagram for Director Consultation

New Element: Upper Limit for New Facilities

- Between 10 and 100 in a million and HI 1 and 3, a new facility permit would be possible based on the outcome of director consultation
- No new facility permits would be issued above 100 in a million or HI of 3

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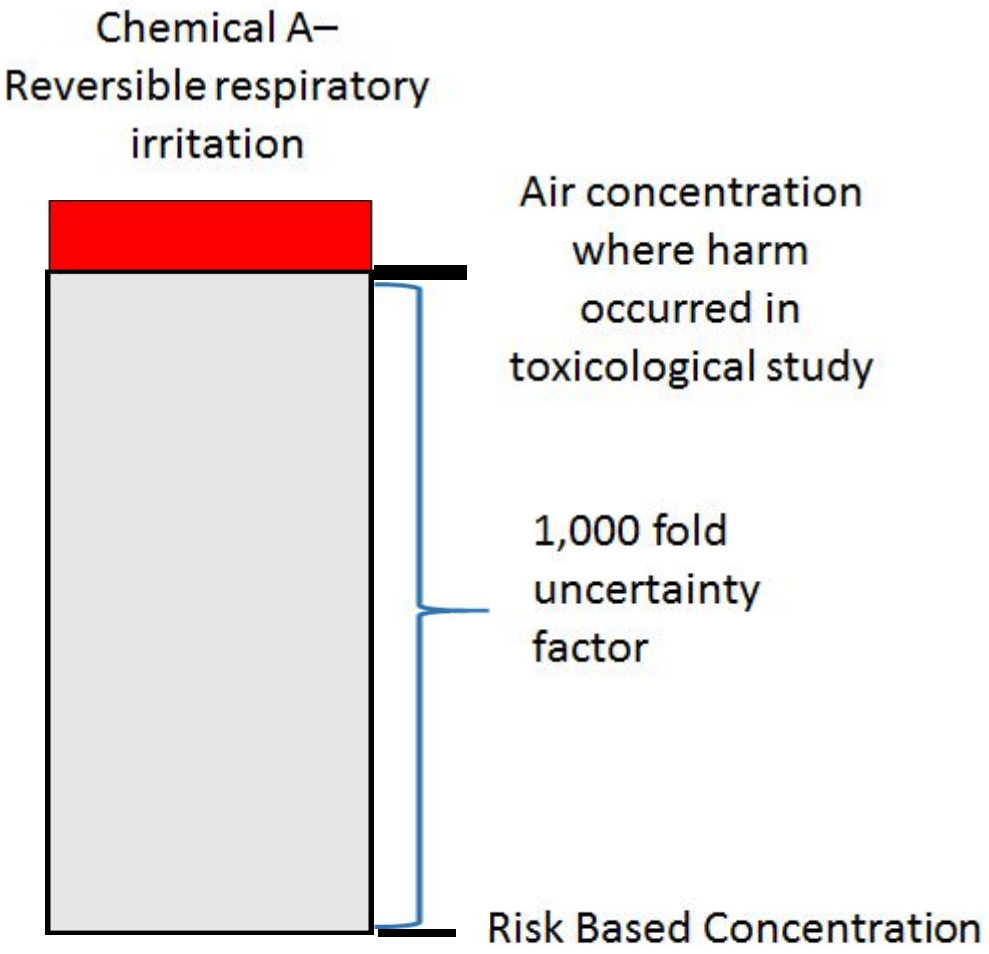
Proposal for More Detailed Evaluation of Non-Cancer Risk Action Levels



Proposed Revision: Different requirements for New/Modified Emission Units

- Proposal for no risk action levels for new emission units
  - Old: 1/million or 5/million with TBACT, HI 1
  - New: No emission unit risk levels or technology requirements
    - Facility could choose to install TBACT on new emission units, or perform entire facility risk assessment and either show that total facility risk is at or below risk action level or continue on to a Risk Reduction Plan and Conditional Risk Level if needed, where TBACT would be required
- Only count total facility risk
- More flexibility to manage emissions within facility

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Proposed Revision: Risk Action Level for Existing Facilities

- Proposed existing facility risk action level 25/million
  - Old proposal 10/million
  - HI would remain at 1
- Proposed existing facility accelerated schedule risk action level 50/million and HI of 3
  - Old proposal 25/million
  - HI would remain at 3

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Proposed Revision: Area Cap Range

- Risk action level within the range of 50 – 100 in a million and HI of 3
  - Old proposal 20-80, HI 2-4
  - Scaled to new proposed existing facility level of 25 in a million
  - Will choose a number in this range in draft regulations

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Further discussion or questions?

Risk Reduction Plan

June 20, 2017

Advisory Committee Meeting

Risk Reduction Plan

If risk > Risk Action Level, 3 options:

1. Reduce risk ≤ RAL, follow Risk Reduction Plan
2. If all toxic emissions units meet TBACT and risk cannot be reduced, request Conditional Risk Level
3. If risk can be reduced, but not ≤ RAL, follow Risk Reduction Plan to meet TBACT and request Conditional Risk Level

Risk Reduction Plan - Purposes

- Identify:
  - Risk reduction goal & methods source will use
  - Schedule to implement risk reductions
- Provide enhanced engagement between source and public

Risk Reduction Plan (RRP) - Process

Source:

1. Determines risk reduction methods and implementation schedule
2. Submits application for permit including proposed RRP
3. Presents draft RRP in public meeting, takes comments and submits any revisions to DEQ

DEQ

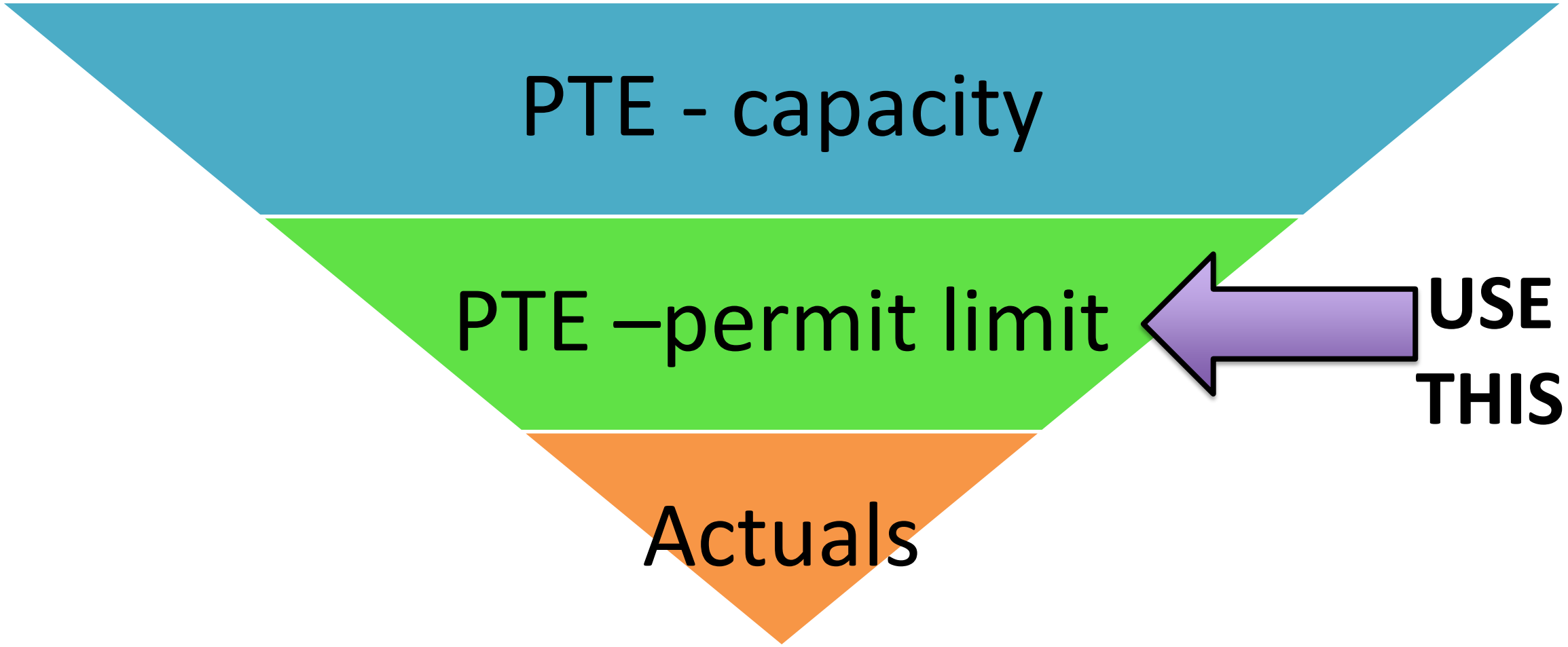
1. Reviews RRP, drafts permit, issues public notice, and holds hearing
2. Evaluates comments, may revise permit, and issues permit

Risk Reduction Plans

Questions?

Potential versus Actual Emissions

Potential to Emit (PTE) versus Actual Emissions



Potential to Emit (PTE) versus Actual Emissions

Questions?

Proposed Conditional Exemptions

Conditionally Exempt Sources

1,584 permitted GDFs

105 permitted Dry Cleaners

Boiler

Natural gas combustion

Conditionally Exempt Sources - clarification

Proposed conditionally exempt sources do have risk but they:

- Are common sources and
- Are already closely regulated, or
- Do not have a method to reduce risk

For all proposed Conditional Exemptions:

DEQ can still require a risk analysis if there are outstanding concerns at any specific source

Other air toxics programs treat these source categories differently

Program
New York
Rhode Island
South Coast Air Quality Management District
Washington

Reasons to Propose Exemption of Gasoline Dispensing Facilities & Dry Cleaners

1,584 permitted GDFs

105 permitted Dry Cleaners

- NESHAP + additional more stringent state rules
- Rules can be revised if necessary
- All available controls have been applied

Natural gas combustion

- Arsenic is present in natural gas
- Only feasible way to remove arsenic is at wellhead (gas processing plant) – no control method available for gas users

- Commonly used at commercial and industrial facilities, and for residential heating
- Natural gas one of the cleanest fuels - BACT for boilers and cash incentives for switching to NG

Natural gas combustion exemption options

1. Completely exclude risk from natural gas combustion (excluding direct contact byproducts from afterburners, dryers, etc.).

2. Calculate risk from natural gas combustion, but don't count it toward the RAL.

3. Include risk from natural gas usage in total source risk, but specify that TBACT is no additional control

DEQ & National Association of Clean Air Agencies may request EPA consider arsenic removal at wellheads

Conditional Exemptions

Questions?

Screening process

Joe Westersund, Cleaner Air Oregon Coordinator
June 20, 2017

Screening process proposal- April 4th

conservative and easy to calculate

detailed and site-specific

Analysis 1: screening for de minimis using Reference Emissions Rates (RERs)

→ De minimis. No permit required.

Analysis 2: screening for allowable risk using RERs

Analysis 3: AERSCREEN modeling

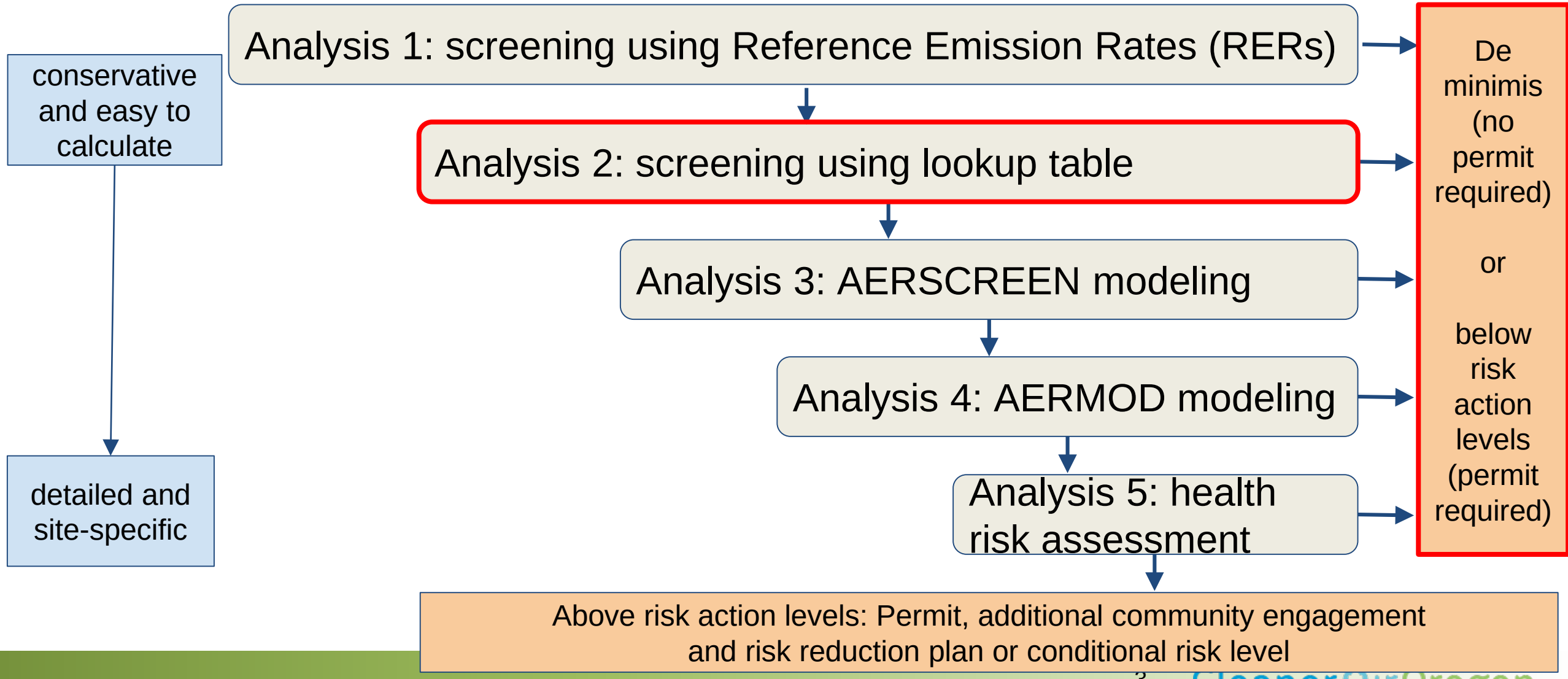
Analysis 4: AERMOD modeling

Analysis 5: health risk assessment

→ Below allowable risk. Permit required.

Above allowable risk: Permit, additional community engagement and risk reduction plan or conditional risk level

Screening process proposal- new



Lookup table

- New screening step between initial analysis (RERs) and AERSCREEN modeling
  - More site-specific than RERs
  - Easier to use than AERSCREEN
- Designed to streamline the screening process
  - find out some sources are below Risk Action Levels (RALs), without having to run a model
- Uses a table of dispersion factors that you look up based on:
  - Distance to nearest receptor
  - Stack height

De minimis

- Old proposal: facility is de minimis only if their risk estimate <u>at the RER level</u> is below de minimis limits (0.5 in a million / HI 0.5)
- New proposal: facility is de minimis if they can show <u>at any analysis level</u> that they're below de minimis limits

- Higher levels of screening analysis are more accurate than earlier ones. No reason not to use the data if it shows facility risk is low
- Decreases burden on facilities and agencies

Receptor locations

- Modeling receptor: geographical location where model calculates a concentration

- Human receptor: location outside the facility property line where people may be exposed

Chronic Exposure Receptors

- Used with annual emission rates and chronic RBCs
- Locations where people may have a lifetime of exposure
  - Sidewalks and streets adjacent to a source would not be receptor locations
- 3 exposure scenarios:
  - Residential (houses, long-term residential health care facilities)
  - Nonresidential workers (commercial & industrial facilities, hotels, hospitals)
  - Nonresidential children (schools, day care facilities)

Acute Exposure Receptors

- Used with 24-hour emission rates and acute RBCs
- Locations where people may spend a few hours or more in a day
  - Sidewalks and streets adjacent to a source would not be receptor locations
- Only one exposure scenario- no difference between residential and nonresidential
- Examples: all chronic receptor locations, as well as public parks and agricultural fields

Receptor locations

- What if the land near a facility is empty now, but is slated for development in the future?

Options for setting receptor locations

By Current Use

- Pros
  - More realistic, only considers exposure at places where there is actually a building
- Cons
  - Facility could be out of compliance if a neighbor builds a new building
  - Difficult for DEQ to track when a new building is built

By Current Zoning

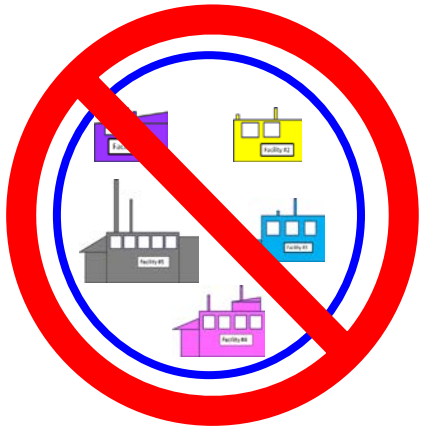
- Pros
  - More certainty for facility and DEQ- zoning changes less often than buildings
- Cons
  - More conservative, sometimes protecting for a use that isn't currently happening at that place

We're proposing to use current zoning- what do you think?

Questions?

Cumulative Area Impacts

Cumulative Area Impacts



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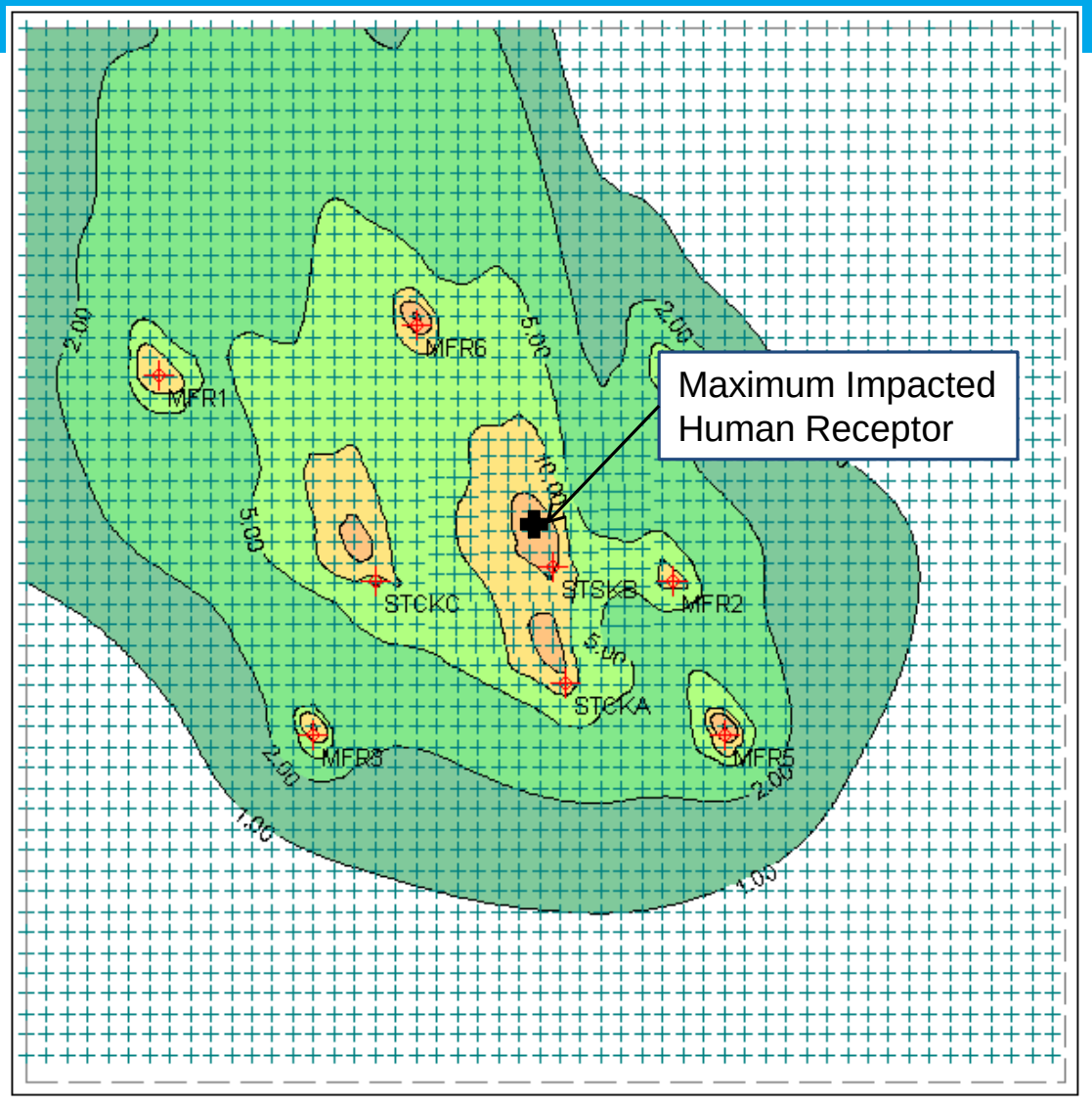

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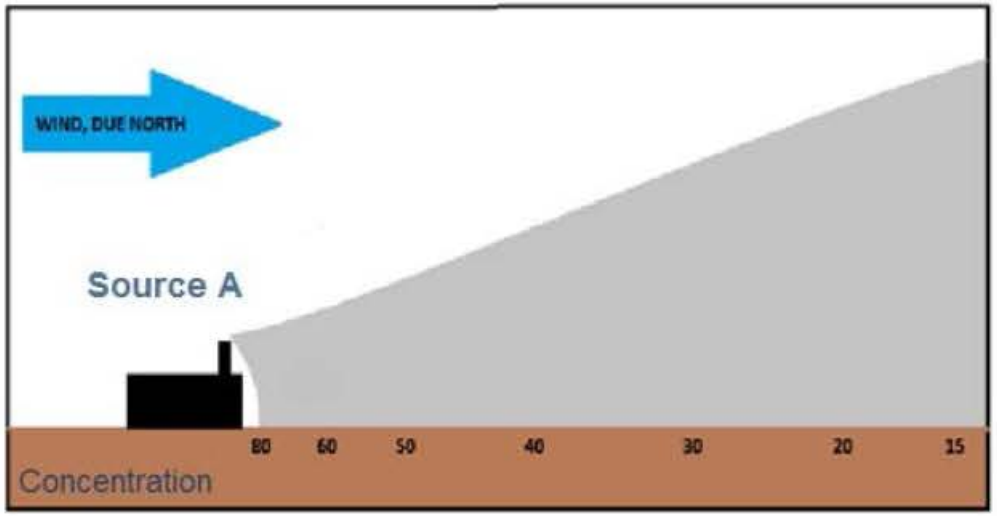

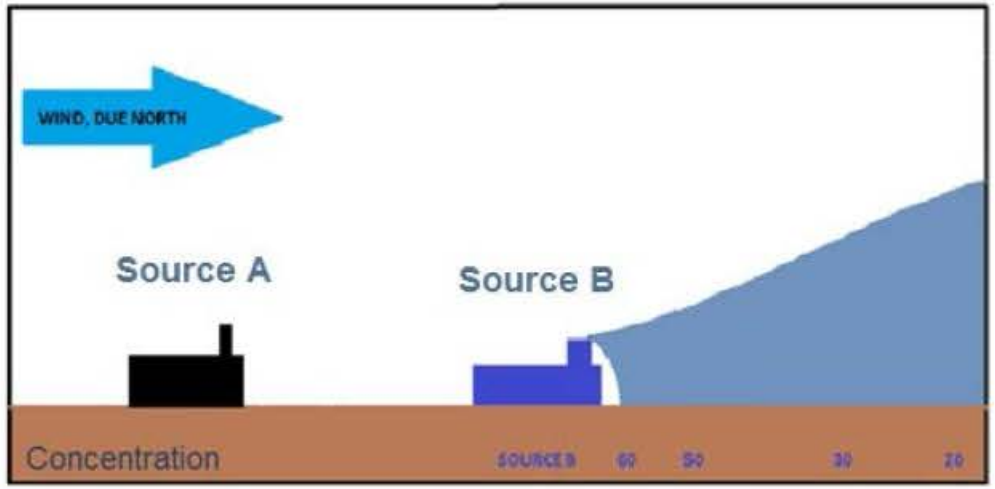

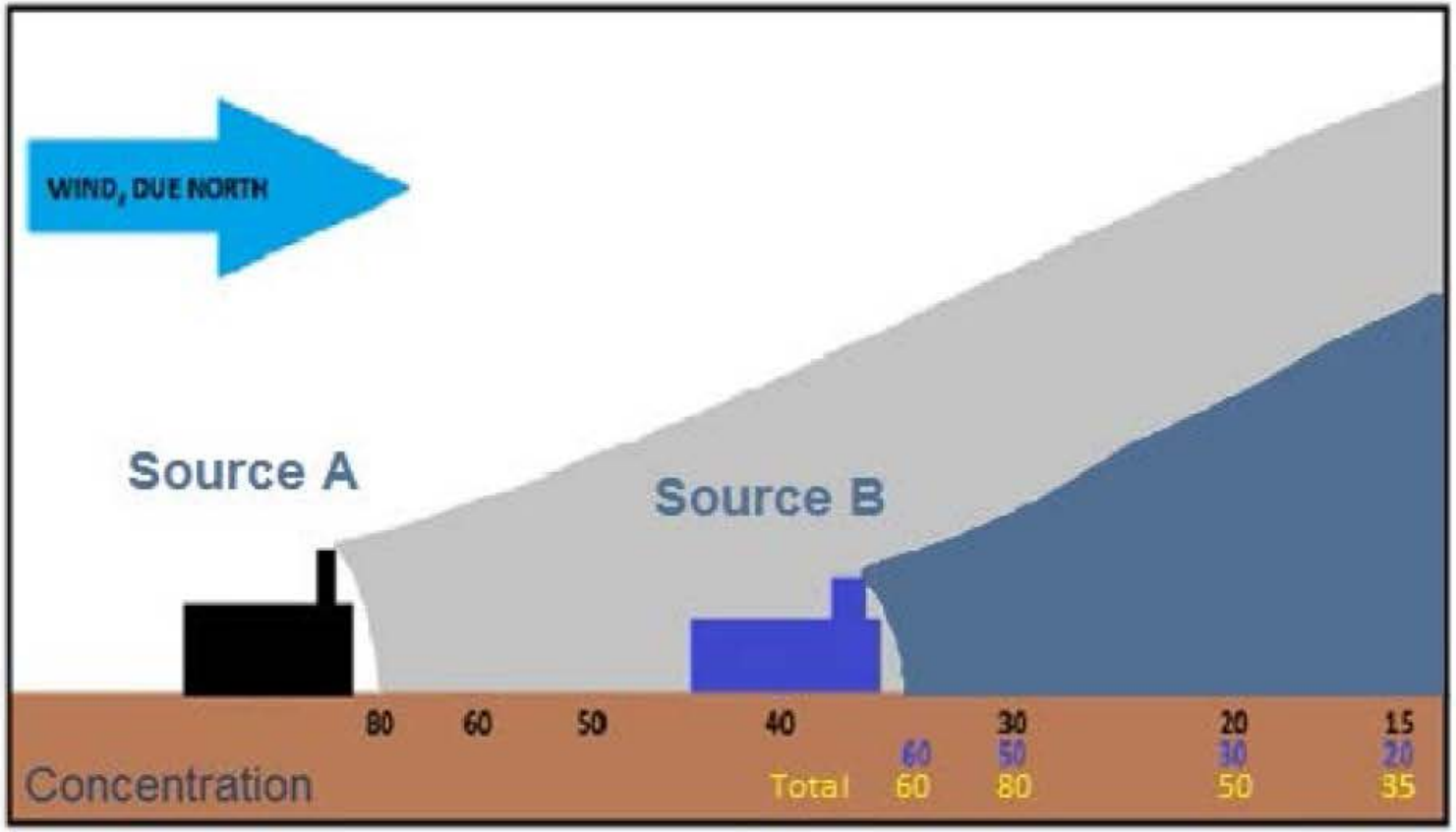

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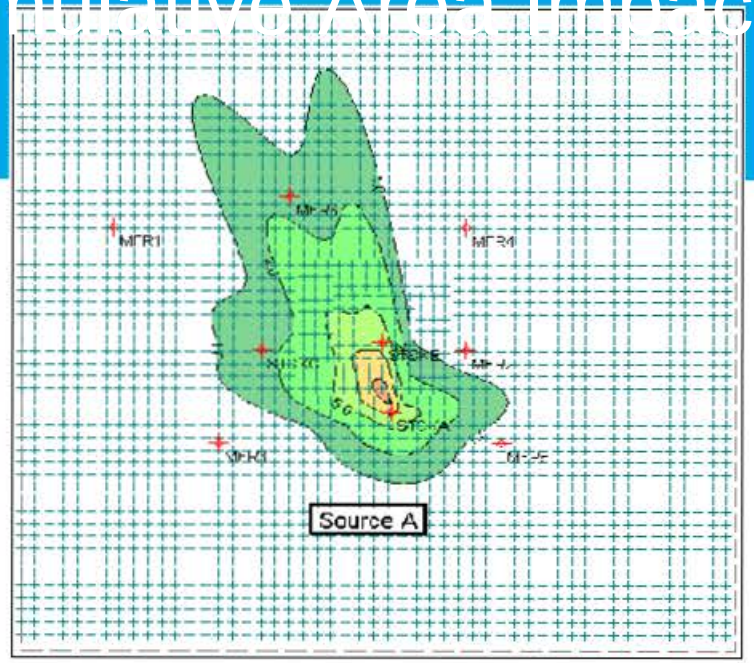

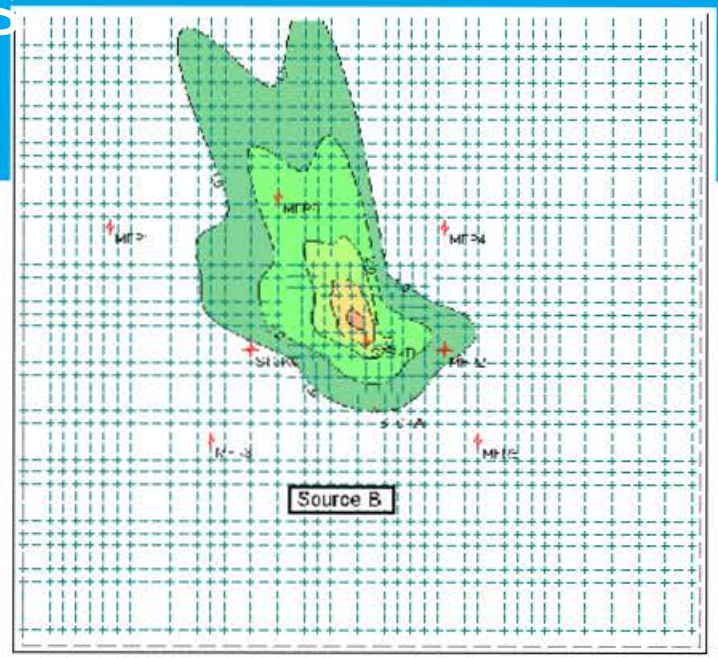

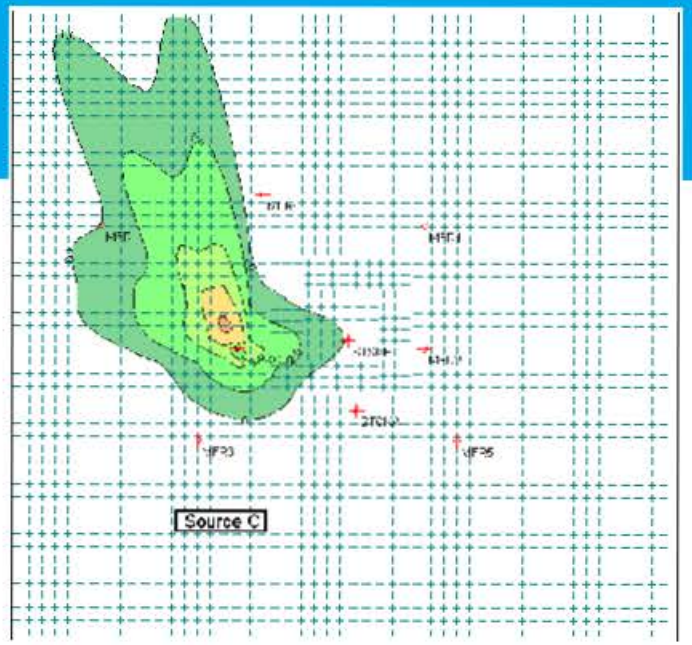

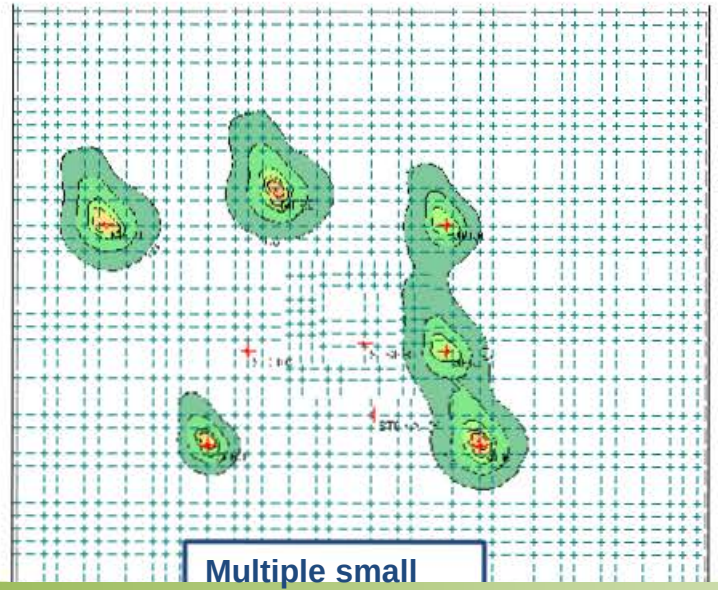

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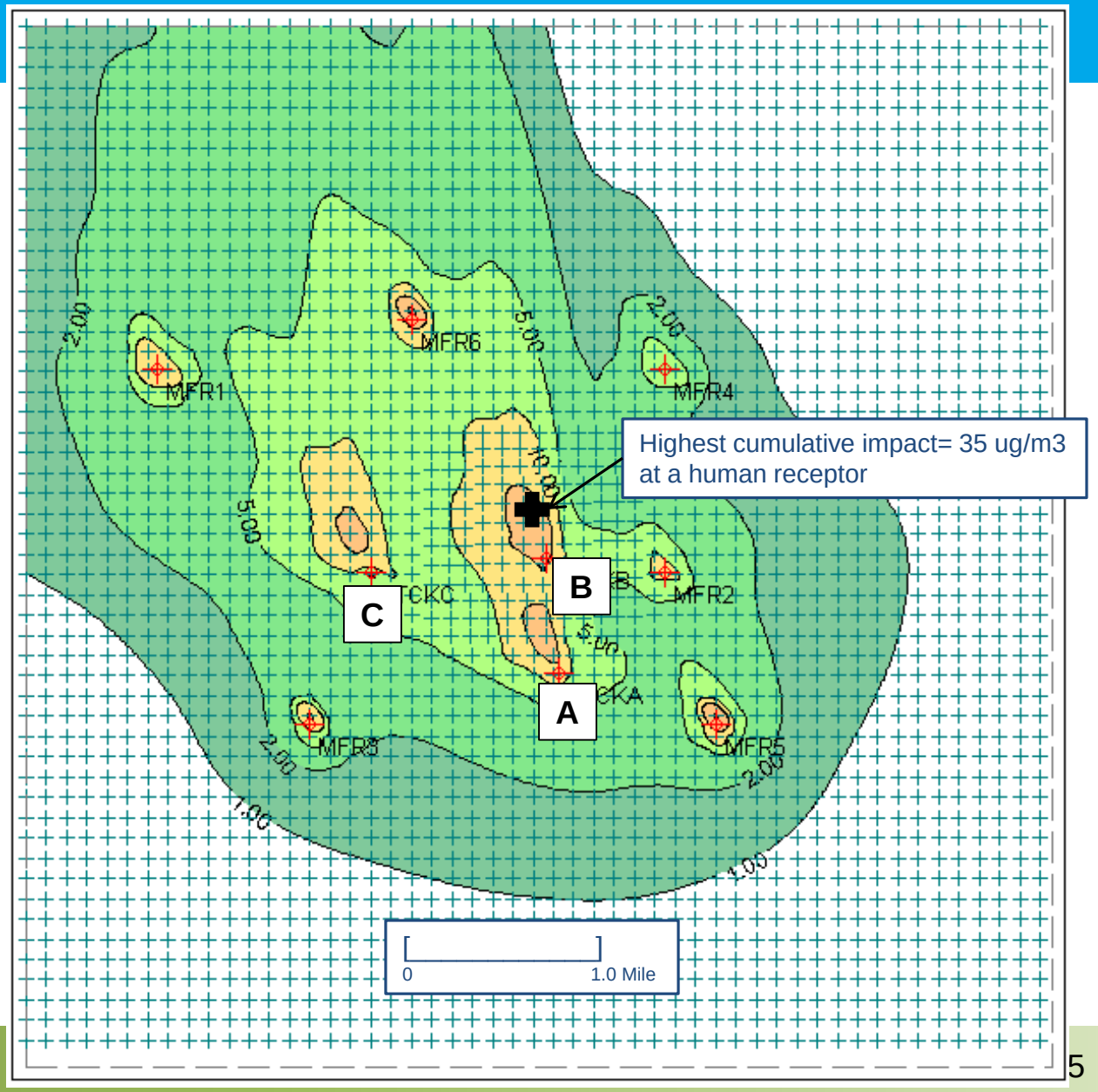

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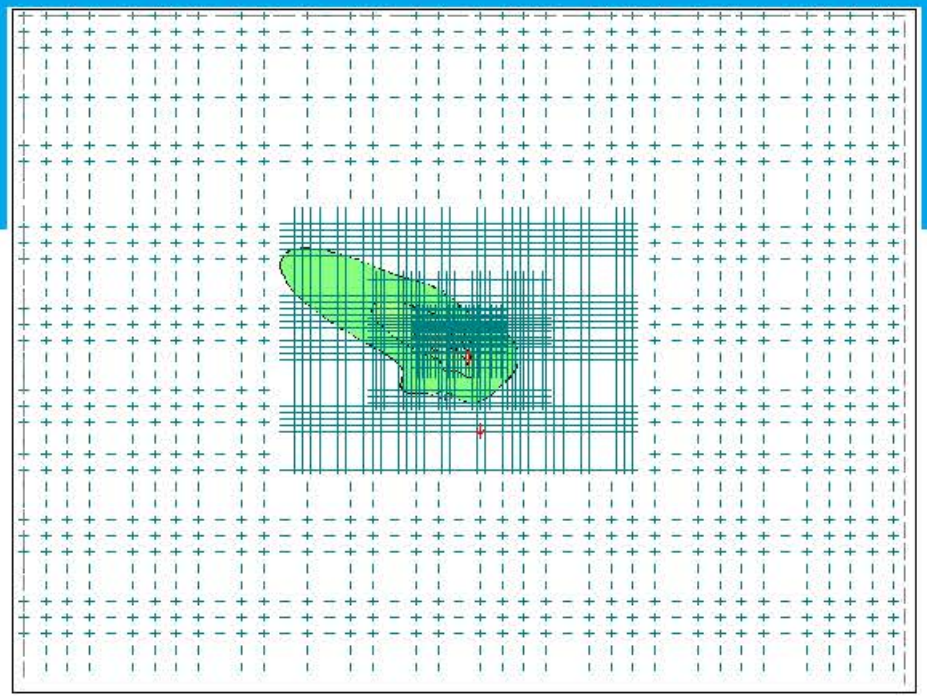
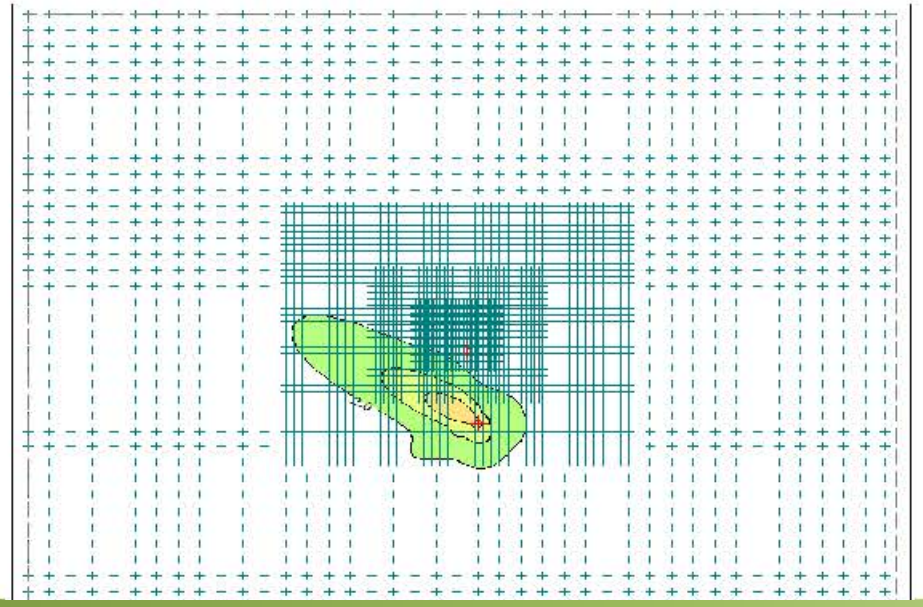
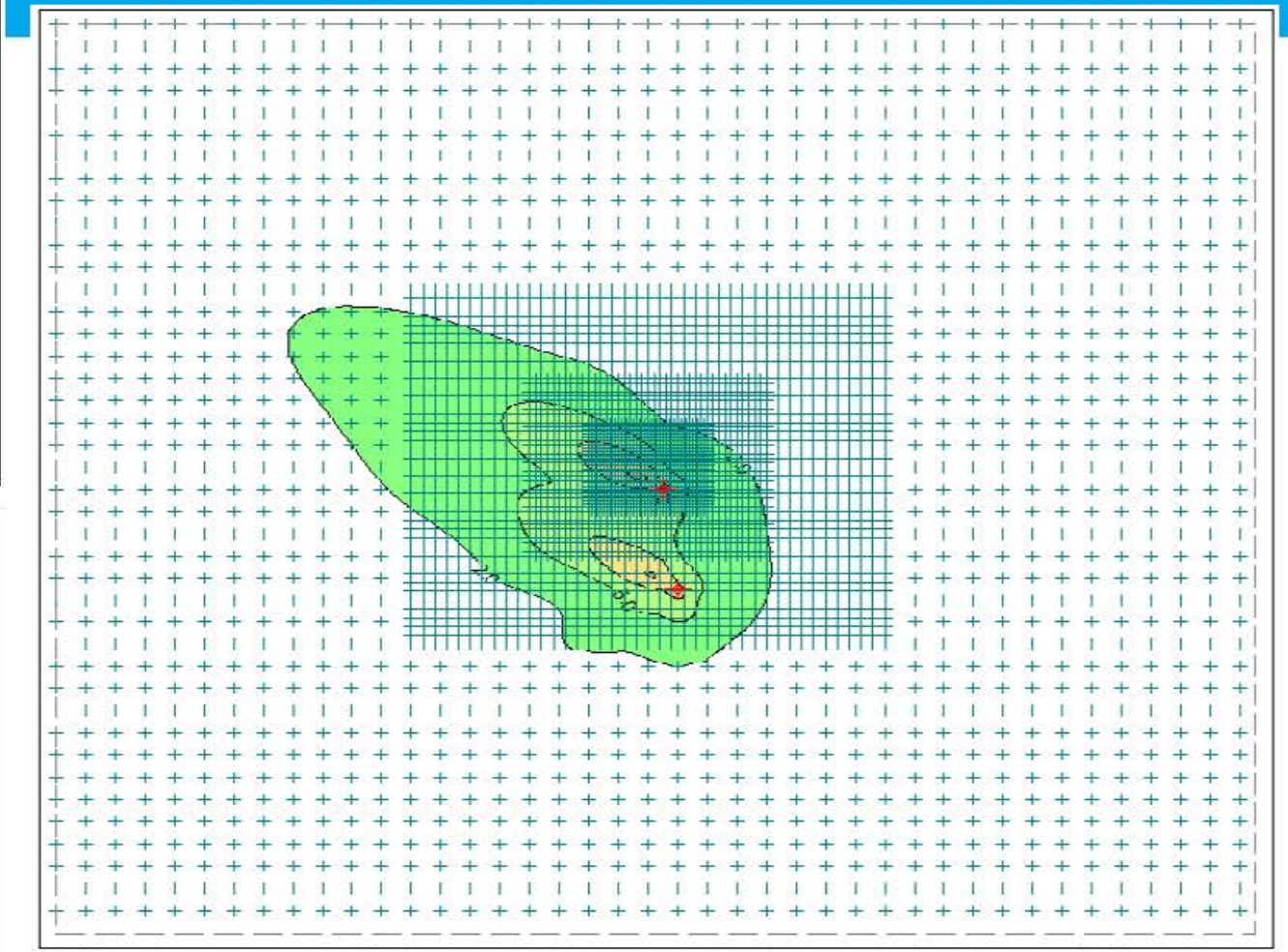
Cumulative Area Impacts







Cumulative Area Impacts

Key points:

1) The analysis of cumulative impacts from multiple sources does not define an area with boundaries. There is no limit to restrict new sources coming into a defined **area**

2) Cumulative impacts would be calculated at modeling receptors, but only those receptors that were also human receptors would be included in the risk analysis.

3) New sources or expansion of existing sources could occur in an area if the additional impact at individual modeling/human receptors was less than risk action levels.

4) Overlap of impact areas dependant on distance and wind. Facilities in close proximity may or may not have significant cumulative impacts.

Cumulative Area Impacts

Questions?

Implementation

Potential Rule Adoption

If EQC adopts the proposed Cleaner Air Oregon rules in June, 2018:

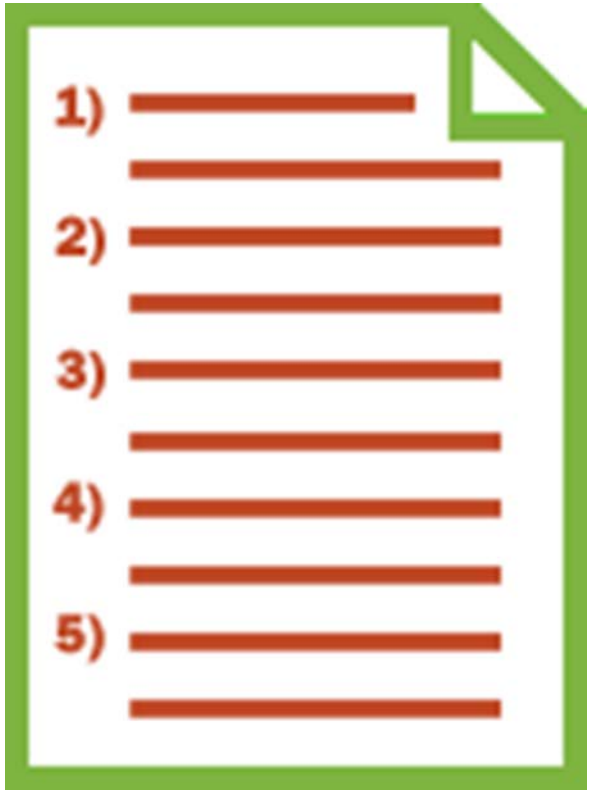
- Sources will not be required to be in compliance immediately
- DEQ will prioritize sources by emissions, toxicity, and location
- DEQ will notify sources when they must submit risk assessments
- Implementation of the full program will take years, depending on resources

Policy Forum Input on Phasing

- Start with sources posing the highest risk
- Start by areas of highest risk to the most people

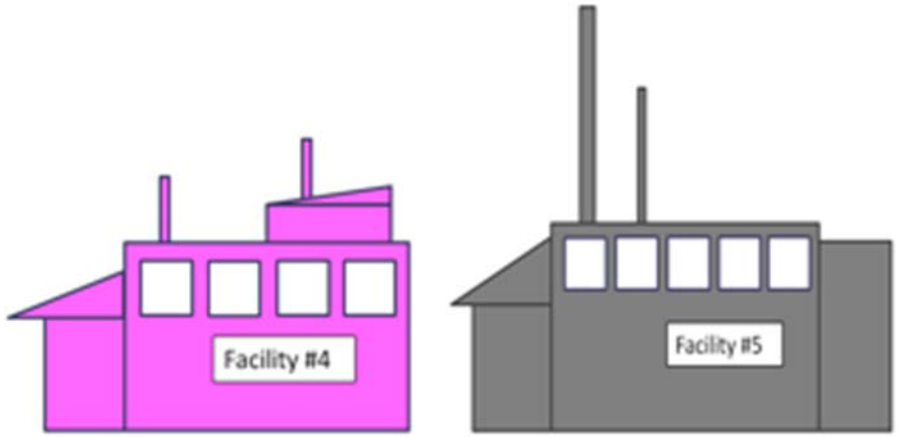
Phasing

- Evaluate emissions inventory
- Rank sources by emissions and toxicity
- Start with highest ranked sources

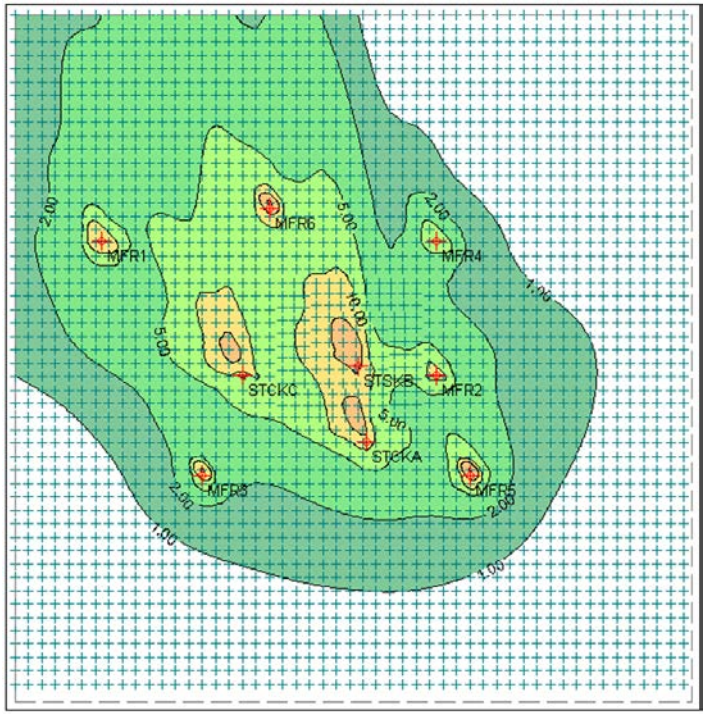


First Year of Implementation

- Start with a few of highest ranked sources



- Work with one area of multiple sources



Implementation